

# Notice of Allowability

Application No.

10/781,652

Examiner

D. Rutledge

Applicant(s)

SATO ET AL.

Art Unit

2851

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## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to \_\_\_\_\_.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☒ The drawings filed on 20 February 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 07/04 & 02/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Oath/Declaration***

2. An executed Declaration and Power of Attorney was received on 12 July 2004.

### ***Information Disclosure Statement***

3. Information disclosure statements were received on 12 July 2004 (the Japanese reference was reviewed based on the drawings since a translation was not provided) and 09 February 2005 (the reference was reviewed).

### ***Allowable Subject Matter***

4. Claims 1 – 18 are allowed.
5. The following is an examiner's statement of reasons for allowance:  
  
The prior art does not disclose or suggest the invention as claimed – at least a lithography simulation method comprising: focusing light at an aperture angle; dividing the surface of the substrate into a first and second region; the first region being defined as a region onto which all of the light strikes and the second region being defined as a region onto which a portion of the light strikes; calculation the light intensity in the first and the second regions.

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The closest prior art:

**Inui (US Pat. No. 6,449,387)** analyzes light intensity on a light exposure area where a shape of a mask pattern will be projected by dividing the substrate into first areas at predetermined intervals; determining whether transmission areas which transmit the exposure light and non – transmission areas are not mingled at a cut-out first portion of the pattern; calculating the intensities of the light which will be projected on the light exposure area when it is determined that the transmissions areas and the non – transmission areas are not mingled; then dividing the first areas into second area at second intervals smaller than the first intervals and calculating the intensities of light which will be projected through the second areas when it is determined that the transmission areas and the non – transmission areas are mingled. In this method the first area are further divided into second areas to see if mingled areas exist, therefore the regions or areas are not the same.

**Wu et al. (US 6,071,658)** divides the mask into a first area patch defined a area containing part of the whole pattern and a second area patch defined not containing a pattern and then computes the light intensity necessary to prevent proximity effect correction in each area patch. The area patches are not defined as claimed by the applicant.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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***Conclusion***

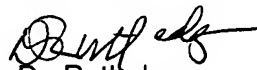
6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references disclose methods or compensation or correcting for optical proximity effect, but do not suggest or disclose the applicant's method.

***Response Data***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to D. Rutledge whose telephone number is (571) 272-2127. The examiner can normally be reached on Mon - Thurs, 6:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571) 272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



D. Rutledge  
Primary Examiner  
Art Unit 2851

dr  
7/29/05